The Unique Role of Anger among Negative Emotions in Goal-Directed Decision Making

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While much of consumer choice is goal-driven, consumers may often fail to prioritize their goals when making decisions. Despite the relevance of goal pursuit to consumer behavior, relatively little work has examined the factors that facilitate goal-directed decision making. In the current research, we examine when and how different negative emotions may influence goal-directed decision making. In six studies, we show that anger leads to greater goal-directed decision making and more goal-consistent choices compared to sadness and fear. As a consequence, anger (but not sadness or fear) may result in both less susceptibility to contextual choice biases and greater post-choice satisfaction. We argue that the results arise because anger is characterized by appraisals of high certainty and high control, whereas both sadness and fear are characterized by appraisals of low certainty and low control.

Much of consumer choice is seen as being driven by goals (Markman and Brendl 2000), and although consumers' choices are often an important means to achieving goals, extant research suggests that consumers may fail to prioritize their goals when making decisions due to intervening contextual and/or situational factors (Fishbach and Dhar 2007; Fujita 2011). Prior research shows that consumer make more goal-consistent choices when they are reminded of their goals (e.g., Locke et al. 1989), which supports the notion that goal pursuit does not always guide consumers' decisions. While consumers' ability to make goal-consistent choices is central to both their overall goal pursuit as well as their decision satisfaction (Markman and Brendl 2000), relatively little work has examined factors that facilitate goal-directed decision making. In the present article, we inquire whether different emotions may serve to make consumers' decision making more goal-directed, and therefore result in more goal-consistent choices.

Our investigation focuses on negative emotions, which have traditionally been thought to inhibit goal pursuit (e.g., Bagozzi, Baumgartner, and Pieters 1998). Contrary to this view, we propose that negative emotions may promote goal-directed decision making depending on the specific appraisal tendencies these emotions evoke (e.g., Lerner and Keltner 2000, 2001). We illustrate this idea by examining three negative emotions: anger, fear, and sadness. We predict that anger's appraisals of high certainty and high control (Tiedens and Linton 2001; Lerner and Tiedens 2006) will lead to greater goal-directed decision making, but the same will not be true of fear and sadness, both of which are characterized by appraisals of low certainty and low control.

The rest of the article is organized as follows. We start with a brief overview of relevant literature to build a theoretical framework explaining when and how negative emotional states may lead to more goal-directed decision making and goal-consistent choice. Next, six studies highlight the role and consequences of anger in increasing goal-directed decision making, and

contrast it with fear and sadness. We conclude with a discussion of the theoretical and practical importance of the findings, and directions for future research.

THEORETICAL BACKGROUND

Consumers navigate multiple decisions every day. An optimal way to make these decisions is to choose outcomes that best satisfy one's goals. However, this is not how consumers always make their decisions. Something as fundamental as being confronted with a multi-attribute choice can lead consumers to get bogged down in making attribute-level tradeoffs, ultimately leading them to systematically fail at emphasizing their important goals (Fishbach and Dhar 2007). This sort of bottom-up processing, wherein decision criteria are based largely on attribute-level information provided within a choice context, often leads consumers to make goal-irrelevant choices intended to resolve the tradeoffs presented in the choice-set. In such cases, consumers' choice outcomes reflect biases arising from the decision context or task (e.g., Simonson 1989; Bettman, Luce, and Payne 1998) rather than reflecting their goals (Fujita and Trope 2014).

Conversely, consumers may engage in more top-down processing in which their decision criteria are guided by goals that they bring to the choice context (Park and Smith 1989). In this top-down approach consumers are less likely to get caught up in tradeoffs, leading them to make more goal-consistent choices that are also likely to be more satisfying (e.g., Markman and Brendl 2000). In keeping with this notion, research shows that having a clear sense of which attributes are more important in a choice can reduce decision biases that arise from contextual and situational factors (e.g., Evangelidis, Levav, and Simonson 2018). Given the benefits of goal-

consistent choices, it is important to identify factors that may facilitate more goal-directed decision making. In the current article, we explore how certain emotions may result in greater goal-directed decision making, and hence more goal-consistent choices.

Role of Emotions in Goal-Directed Decision Making

A growing body of research indicates that emotions, even when incidental to the decision at hand, can systematically impact judgment and decision making (e.g., Lerner and Keltner 2000; Schwarz and Clore 2007). A main conclusion from this research is that emotions not only impact decision making through their valence, but also through the specific cognitive and motivational associations and processes they evoke, referred to as appraisals. Using this approach, Smith and Ellsworth (1985) distinguished fifteen different emotions, and proposed that each varied on and could be defined by six core appraisals including pleasantness, certainty, control, attentional activity, anticipated effort, and agency. Lerner and Keltner (2000, 2001) further proposed the Appraisal-Tendency Framework to predict and explain the carryover effects of past or incidental emotions in future judgments and choices. They proposed that cognitive predispositions or appraisal tendencies unique to each emotion can lead the experiencer to evaluate future events in a way consistent with the core appraisals of that emotion (e.g., Lerner and Keltner 2000, 2001; Han, Lerner, and Keltner 2007). As a consequence, subsequent behavior and judgment differ depending on the specific underlying appraisals of the experienced emotion.

We use the Appraisal-Tendency Framework to explore how negative emotions under particular contexts may facilitate goal-directed decision making and choice. Specifically, we posit that two key appraisal tendencies relevant to goal-directed decision making are certainty and control. Certainty is the subjective sense of understanding and feeling sure of a situation,

while control refers to attributing events to oneself rather than to situational factors (Smith and Ellsworth 1985). These two appraisals, especially when co-occurring, have important implications for consumer decision making and goal pursuit. Feeling highly certain and in control can promote goal pursuit by increasing confidence and self-efficacy (Bagozzi and Dholakia 1999); by bringing behaviors in line with attitudes, preferences, or goals (Locke et al. 1989; Glasman & Albarracín 2006; Tormala and Rucker 2007); and by facilitating goal planning (Maglio, Gollwitzer, and Oettingen 2014). Applying this research to decision making, we predict that consumers with greater certainty and control should be less likely to focus on goal-irrelevant information and attribute-level tradeoffs presented in a choice context, and instead should be more likely to use their goals as a decision criteria. This goal-directed processing should consequently result in more goal-consistent choices.

It further follows that consumers high in certainty and control should be less susceptible to decision biases that can arise from too much focus on attribute-level tradeoffs. For example, the compromise effect (Simonson 1989) and choice deferral (Dhar 1996, Dhar & Nowlis 1999) both arise because consumers find it hard to justify resolving the tradeoffs between the multiple attributes present in choice options (Dhar and Simonson 2003; Fishbach and Dhar 2007). In such cases, consumers often choose a middle-of-the-road option or choose to defer the decision rather than choose something based on their goals or preferences. We posit that because consumers high in certainty and control rely more on their goals and less on attribute-level tradeoffs, they should be more likely to choose goal-consistent options and thus less likely to either choose a compromise option or to defer their choices. Furthermore, we predict that appraisals of certainty and control can increase post-choice satisfaction because consumers will be more satisfied when their choices are more consistent with their goals (Markman and Brendl 2000).

We test our predictions by examining negative emotions which differ in appraisals of certainty and control. Specifically, we look at anger, sadness, and fear. Anger is characterized by high certainty and high control, while sadness and fear are both characterized by low certainty and low control (Lerner and Keltner 2000, 2001; Tiedens and Linton 2001; Han et al. 2007). Because of anger's appraisal tendencies, we posit that it should reduce emphasis on attribute-level tradeoffs presented in a choice. This notion is consistent with prior research showing that high certainty and control can reduce processing depth (Tiedens and Linton 2001), which would likewise predict reduced engagement with tradeoffs. We posit that in multi-attribute choice contexts, such a lack of emphasis on tradeoffs can be advantageous as it can increase goal-directedness and result in more goal-consistent choice. Furthermore, as elaborated earlier, such increased goal-directedness should also reduce susceptibility to contextual choice biases, and to increase post-choice satisfaction. On the other hand, as sadness and fear are characterized by low certainty and control, we do not expect such a pattern of results from either of these emotions. Note that we focus on negative emotions because they are generally believed to inhibit goal pursuit (e.g., Bagozzi et al.1998). Thus, demonstrating that some negative emotions, such as anger, can facilitate goal-consistent choices makes a stronger point about the importance of appraisal tendencies when examining the effect of emotions on goal-directed decision making.

HYPOTHESES AND OVERVIEW OF STUDIES

The current article aims to test the central hypothesis that angry consumers are more likely to make goal-consistent choices. We predict that this is a product of consumers engaging in fewer attribute-level tradeoffs. We further predict that, as a consequence of increasing goal-consistent choice, angry consumers will be less susceptible to contextual choice biases and will

report greater satisfaction with their chosen products. In testing these hypotheses, we also rule out several alternative explanations relating to heuristic decision making, cognitive load, arousal and, valence.

We provide evidence for our theorizing and predictions in six studies. We start with an initial demonstration of the proposition that consumers experiencing anger make more goal-consistent choices (Study 1). We then replicate this while distinguishing anger from fear to provide support for the importance of certainty and control appraisals to goal-directed decision making, and to rule out arousal and valence as competing explanations (Study 2). Next, we examine how anger may lead to more goal-consistent decisions in cases where choice goals are not explicitly provided. Consistent with the notion that anger leads to more goal-consistent choices, we show that angry individuals engage in fewer tradeoffs when making choices between options with multiple competing attributes, and as a consequence are less susceptible to both the compromise effect (Study 3A) and choice deferral (Study 3B). Finally, we demonstrate that as a consequence of this greater goal directedness, angry participants experience greater post-choice satisfaction in multi-attribute choices (Study 4A and 4B). We additionally distinguish anger from fear (study 2) and from sadness (studies 3B and 4A) to provide a fuller picture of how negative emotions impact goal-directed decision making.

STUDY 1

To provide an initial test of whether anger facilitates goal-directed decision making, we primed participants with the goal to choose either a high speed or a high capacity laptop. We predicted that angry (vs. neutral) participants would make choices which were more consistent with their primed goal.

Method

Participants from an online pool (N = 271, M_{age} = 35) completed a series of tasks presented as unrelated studies to win a $25 gift certificate. The study had a 3 (Goal primed: speed, capacity, or none) X 2 (Emotion: anger or neutral) between-subjects design. The first task primed the different goals: participants in the speed goal (vs. capacity goal) condition read a customer review of a car commenting on the speed (capacity) of the vehicle (stimuli of all studies are provided in Web Appendix A). Participants were then asked to identify as many speed-related (capacity-related) words as possible in the review. Next, they imagined test-driving a fast (spacious) car, and were asked to write their own review about what they thought their experience would be like in such a way that someone reading it could get a sense of the car's speed (capacity) without knowing the make and model of the vehicle. Participants in the no-goal condition completed a sentence unscrambling task in which none of the words were related to either speed or capacity.

Next, participants completed a two-fold emotion induction task. In the anger condition, participants were first presented with three pairs of faces and indicated whether the faces depicted the same or different emotions. Five of the six faces presented an angry expression, thus priming anger (adapted from Winkielman, Berridge, and Wilbarger 2005). Participants then completed an autobiographical emotion induction task in which they listed three times when they had felt really angry, and then elaborated on one of these event in a way that someone reading their description would also feel angry (Lerner and Keltner 2001). In the neutral condition, participants were first presented with three pairs of products, and indicated whether the products belonged to the same category or not. Next, they completed an autobiographical task in which

they listed three things that happened to them yesterday, and described one event in detail. The autobiographical task was pretested ($N = 91$; $M_{age} = 34$) to lead to greater anger than the neutral emotion condition (7-point scale: $M_{anger} = 5.33$, SE = 0.36; $M_{neutral} = 1.54$, SE = 0.05; $F(1,89) = 37.06$, $p < .001$).

Finally, participants made a choice between two laptops that were similar on several dimensions (brand, price, screen size, and weight), but differed on speed and capacity such that Laptop A had faster processor speed but lower hard-drive capacity while Laptop B had slower speed but higher capacity. Participants indicated their preference between the laptops on three 7-point scales (1 = Laptop A to 7 = Laptop B): 'Which laptop do you like more?', 'Which laptop is more attractive?' and 'Which laptop you think is better for you?' They then made a choice between the two laptops.

Results and Discussion

Preference Ratings. The three preference measures were aggregated (Cronbach's alpha = .97) such that lower numbers indicate preference for speed (Laptop A) and higher numbers indicate preference for capacity (Laptop B). An ANOVA revealed a main effect of goal prime on preference ($F(2,265) = 5.1$, $p < .005$), moderated by the anger X goal interaction ($F(2,265) = 7.45$, $p < .005$). Angry participants primed with the speed goal rated the faster laptop as more attractive ($M = 2.01$, SD = 1.36) compared to neutral participants primed with the speed goal ($M = 3.37$, SD = 1.88; $t(269) = -2.94$, $p < .01$). Similarly, angry participants primed with a capacity goal showed a greater preference for the higher capacity laptop ($M = 4.18$, SD = 2.35) compared to neutral participants primed with the capacity goal ($M = 3.23$, SD =1.99; $t(269) = 1.95$, $p = .05$). Furthermore, within the anger condition participants primed with speed tended to prefer the

faster option relative to both the no-goal prime ($t(265) = 2.24$, $p < .05$) and the capacity prime ($t(265) = 4.86$, $p < .001$), while participants primed with capacity (vs. no-goal) preferred the higher-capacity laptop ($t(265) = -2.73$, $p < .01$). However, none of these contrasts were significant in the neutral emotion condition (p's > .37; see Figure 1A). In other words, the preferences of angry participants were consistent with the primed goals to a much greater degree than the preferences of participants in neutral emotion.

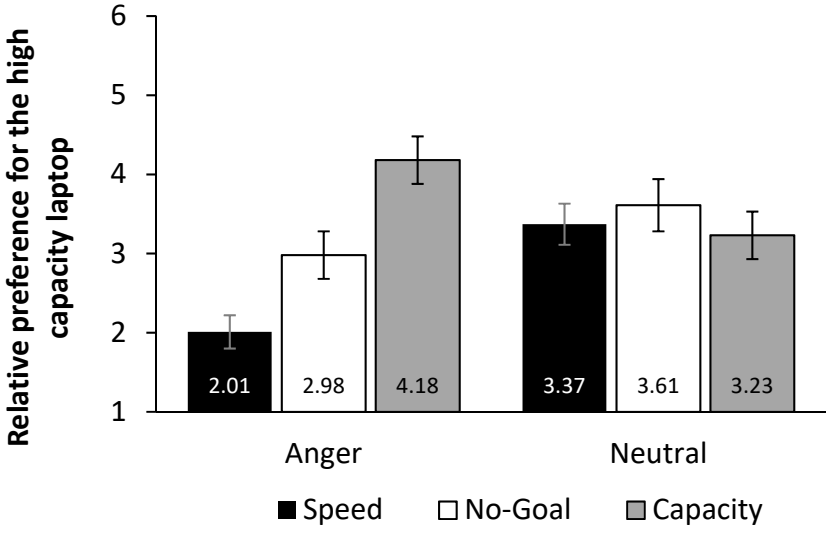

Figure 1A: Study 1 Preference Ratings. The primed goals of speed versus capacity led to more goal-consistent preferences only among angry participants.

Choice. The choice results mirrored the preference data. A logistic regression found a significant interaction between the emotion and goal manipulations (Wald $\chi^2 = 6.44$, $p < .05$). Angry participants primed with a speed goal were marginally more likely to choose a faster laptop ($M = 88.1\%$, SE =5.1%) than were neutral participants with the same speed prime ($M =$ 69.2%, SE = 6.5%; $z(269) = 1.65$, $p = .098$). Similarly, angry participants primed with a capacity

goal chose the higher capacity laptop (M = 51.3%, SE = 8.1%) more often than neutral participants with the same goal (M = 36.4%, SE = 7.3%; z(269) = -2.05, $p < .05$).

Moreover, examining the choice share within each emotion condition shows that only in the anger condition did the speed prime led to a greater choice share of the faster option relative to control (88.1% vs. 66.7%; Wald $\chi^2 = 5.23$, $p < .05$) and the capacity prime led to a marginally greater choice share of the high capacity option relative to control (51.3% vs. 33.3%; Wald $\chi^2 = 2.73$, $p = .098$; see Figure 1B). These same contrasts were not significant among the neutral group (p's > .29). This pattern suggests that angry participants made more goal-consistent choices than did participants in neutral emotion.

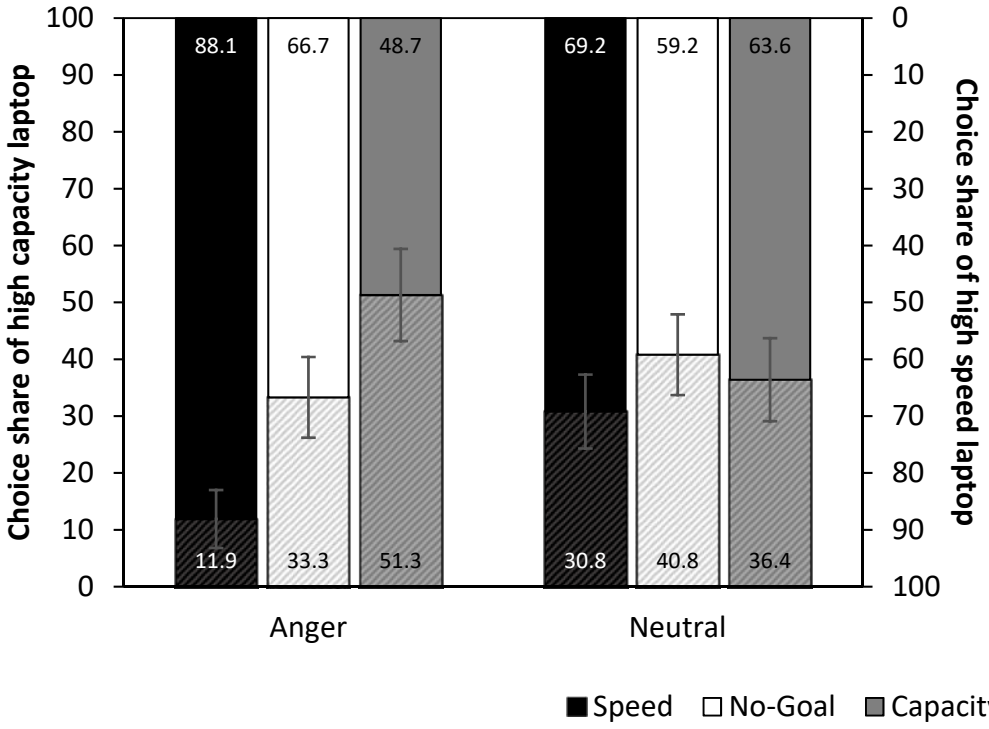

Figure 1B: Study 1 Choice Shares. The primed goals of speed versus capacity led to a greater choice share of the goal-consistent option only among angry participants.

Post-Test. We predicted that anger is unique in its effect due to its appraisal tendencies of certainty and control. Although these appraisal tendencies of anger are well documented in prior research, we wanted to ensure that our manipulation of anger was indeed inducing these tendencies. To do so, we directly measured the tendencies of certainty and control in a post-test ($N = 61$). After completing the same emotion inductions used in Study 1, participants identified an important goal they currently held. We then asked them to indicate how certain they were in their ability to achieve the goal, the extent to which they thought their success on the goal was under their own control (Smith and Ellsworth 1985), and how difficult they thought it was to achieve the goal (all ratings from 1 = Not at all to 9 = Very much). Consistent with the Appraisal-Tendency Framework, angry participants reported significantly greater certainty ($M_{anger} = 7.33$, SE = 0.30; $M_{neutral} = 6.42$, SE = 0.30; $t(60) = 2.18$, $p < .04$) and control ($M_{anger} = 8.10$, SE = 0.23; $M_{neutral} = 6.65$, SE = 0.32; $t(60) = 3.71$, $p < .001$). There was no perceived difference in the level of goal difficulty across the conditions ($M_{anger} = 6.80$, SE = 0.37; $M_{neutral} = 6.10$, SE = 0.25; $t(60) = 1.59$, $p > .11$), suggesting that anger impacts consumers' appraisals as opposed to leading them to systematically pursue goals of different difficulty level.

STUDY 2

We argue that the pattern in Study 1 suggesting greater goal-consistent choice is the result of the high certainty and control appraisals that characterize anger. The first goal of Study 2 is to provide support for this mechanism. Another goal is to address high arousal associated with anger as a possible reason of the observed effects. We address both of these goals by comparing anger to fear. Like anger, fear is characterized by both high arousal and negative

valence. But unlike anger, fear is strongly associated with appraisals of low certainty and low control. We thus predict that while anger will lead to more goal-consistent choices, fear will not. A third goal of Study 2 is to rule out cognitive load as a possible mechanism. Specifically, it is possible that anger increases cognitive load and thereby reduces consumers' ability to make tradeoffs. Since there is no theoretical or conceptual reason to expect fear and anger to affect cognitive load differently, we should expect them to have the same effect on tradeoff making and choice. However, if anger and fear have a different effect on choice, cognitive load is unlikely to be the key mechanism behind the proposed effects.

Method

University students (N = 141; M_{age} = 20.7) completed a single factor (Emotion: anger, fear, or neutral) between-subjects study for course credit. All conditions used the autobiography task from study 1: the anger and neutral manipulations were the same, while the fear condition asked for experiences in which participants has been afraid. All participants then completed four scale measures of emotional arousal and valence (Russell, Weiss, and Mendelsohn 1989). The items asked them how stressed (high arousal, negative), excited (high arousal, positive), bored (low arousal, negative), and relaxed (low arousal, positive) they felt (1 = Not at all to 7 = Very much). Participants were then presented with three choice tasks. Before viewing the options, they were given a goal for each choice (e.g., 'you are looking for lightweight flashlight'). Participants then viewed two options in each of three choice categories: laptops, flashlights and restaurants. One option in each choice was more aligned with the given goal than the other.

Results and Discussion

Choice. Validating our prediction, a mixed-model logistic regression controlling for within-subject replication found that angry participants were significantly more likely to make goal-consistent choices than neutral (M_{anger} = 66.0%, SE = 4.0%; $M_{neutral}$ = 49.3%, SE = 4.3%; Wald χ^2 = 7.76, $p < .01$). Choice share of the goal-consistent options was no different between neutral and fearful participants as predicted (M_{fear} = 52.5%, SE = 4.2%; Wald χ^2 = 0.97, $p > .32$), and a planned comparison confirmed that angry participants chose goal-directed options more than fearful participants (Wald χ^2 = 4.69, $p < .04$). It is important to note that despite having a clear goal only half of the participants in the control condition made a goal-consistent choice. This supports the notion that consumers often get distracted by the tradeoffs presented in a multi-attribute choice and that anger due to its appraisal tendencies of certainty and control can prevent consumers from engaging in excessive tradeoffs and hence keep them focused on their goals. As anger and fear did not have the same effect on choice, it is unlikely that anger leads to more goal-consistent choice due to increased cognitive load.

Arousal and Valence. Using all four arousal/valence items, we constructed measures of both arousal (Cronbach's alpha = .63) and valence (Cronbach's alpha = .53). The anger and fear conditions elicited greater arousal than the neutral condition (M_{anger} = 4.30, SE = 0.12; M_{fear} = 4.07, SE = 0.16; $M_{neutral}$ = 3.59, SE = 0.15; $F(2,138) = 6.12$, $p < .01$) but were no different from each other ($F(2,138) = 1.25$, $p > .26$). These conditions also elicited greater negativity than neutral (M_{anger} = 4.55, SE = 0.09; M_{fear} = 4.32, SE = 0.11; $M_{neutral}$ = 4.18, SE = 0.13; ($F(2,138)$ = 5.55, $p < .02$) but did not differ from each other ($F(2,138) = 0.09$, $p > .75$). Valence and arousal did not predict choice, nor did their interaction (Wald $\chi^2_{arousal}$ = 1.17, $p > .27$; Wald $\chi^2_{negativity}$ = 0.01, $p > .92$; Wald $_{valence\ x\ arousal}\chi^2$ = 1.92, $p > .16$), and the effect of anger on choice remained significant when controlling for these measures (Wald χ^2 = 7.91, $p < .01$). These results suggest

that the impact of anger on goal-directed decision making cannot be explained by arousal or valence.

STUDIES 3A and 3B

The purpose of these next two studies is threefold. First, we generalize our findings to non-explicit goals, that is, idiosyncratic choice goals that participants may bring to the decision. Second, we rule out an alternate explanation of the results observed so far, namely that angry participants may not be responding to goal-consistent cues, but simply to any salient or primed cue. To test this, we examine two context effects that result from excessive reliance on tradeoffs between competing goals and attributes: the compromise effect (Study 3A) and choice deferral (Study 3B). We argue that a greater reliance on consumers' idiosyncratic goals should mean that they will be less sensitive to goal-irrelevant or conflicting information provided in the decision context, and as a result should be less susceptible to context effects arising from tradeoffs between competing attributes. We posit that angry participants should thus show a reduced compromise effect as well as lower decision deferral. Third, beyond showing an attenuation of these context biases, the studies also demonstrate that the effect is indeed driven by angry consumers making fewer tradeoffs between competing attributes. To this end, we examine whether participants indicate consideration of a tradeoff when explaining their choices (Study 3A), as well as the extent of the tradeoff comparisons they perform when making their choices (Study 3B).

STUDY 3A

In this study we test the effect of anger on the compromise effect (e.g., Simonson 1989), the tendency for consumers to choose a middle-of-the-road option that represents a compromise between conflicting attributes. The compromise effect is a common decision bias that can arise due to excessive reliance on tradeoffs between multiple attributes rather than focusing on a specific goal or criterion (Dhar and Simonson 2003). We predict that angry participants will be more likely to focus on their idiosyncratic goals (i.e., I need a fast computer vs. I need a high capacity computer) and will be less sensitive to contextual tradeoffs, and thus will be less likely to choose a compromise option. In support of this process, we predict that angry participants will be less likely to indicate consideration of a tradeoff between attributes relating to conflicting goals when asked to explain their choices.

Method

Participants from a national online pool ($N = 97$; $M_{age} = 36$) completed a series of short questionnaires to win a $25 Amazon gift-certificate. After the autobiographical emotion induction manipulation (Emotion: angry or neutral) used in Study 1, participants completed a choice study in which they imagined that they were shopping for a laptop. They were presented with three laptop options that differed in quality (RAM, CPU, and portability, i.e., how light-weight the option was) and price, reflecting a tradeoff between quality and price goals through different levels of attributes. Importantly, one option offered a middle amount of both quality and price, making it a compromise option within the choice set. Participants indicated which laptop they would buy, and explained their choice.

Results and Discussion

Choice. We measured the compromise effect by comparing the share of the middle option across the two experimental conditions (Neuman, Böckenholt, and Sinha 2015). As predicted, angry participants were less likely to choose the compromise option (18.8%) compared to the neutral participants (36.7%; Wald $\chi^2 = 3.79$, $p = .05$).

Tradeoffs. Four independent judges coded participants' explanations as either reflecting a tradeoff or not based on methodology used by prior research (Drolet, Luce, and Simonson 2009; Khan, Zhu, and Kalra 2011; coding details in Web Appendix B). As expected, 61.2% of participants in the neutral condition gave tradeoff-related explanations while only 31.2% did so when induced with anger ($\chi^2(1) = 8.76$, $p < .005$). A logistic regression confirmed that participants who did not report making tradeoffs were less likely to choose the compromise option (Wald $\chi^2 = 16.23$, $p < .001$). Furthermore, level of tradeoffs mediated the relationship between anger and choice (bootstrapped bias corrected 95% CI [-0.293, -0.058] with 1000 iterations as per Preacher, Rucker, and Hayes 2007; mediation details in Web Appendix B).

These results provide converging evidence that angry individuals rely more on goal-relevant information, which leads them to make more goal-consistent choices. To supplement this claim, we ran an additional study in which we confirmed that angry participants placed more importance on goal-relevant attributes than neutral participants (study details in Web Appendix C).

STUDY 3B

We posit that the tendency to defer a choice, another decision bias which arises as a means to avoid difficult tradeoffs, should be reduced when consumers have a singular or clearer goal (Fishbach and Dhar 2007). If angry participants are more likely to rely on their goals, we

argue that they should be less likely to get caught up in tradeoffs and hence less likely to defer their choice. As in Study 2, we contrasted the effect of anger with another negatively valenced but low certainty and low control emotion, namely sadness. Because it lacks these key appraisal tendencies, we do not expect sadness to have any effect on either deferral or tradeoffs. Also, as with Study 2, contrasting anger and another negative emotion helps to further rule out valence and cognitive load as possible mechanisms for the effect of anger on choice. Finally, this study uses a different manipulation of emotion induction to further generalize our results.

Method

Participants from Amazon Mechanical Turk (N = 428, M_{age} = 35) completed the study in exchange for $0.50. The study had a single factor (Emotion: angry, sad, or neutral) between-subjects design. Participants in the emotion induction conditions were first presented with a survey on "news and media," in which they were asked to "briefly identify a current political topic, event, or person that has made you feel very angry (sad)." Next, participants elaborated on their feelings so that someone reading their statements could understand how they felt. Those in the control condition simply wrote about how and from what sources they got their news and provided specific details.

Next all participants chose between two round-trip airline tickets varying on a number of attributes. Participants were instructed that they could either choose a ticket or choose to wait and look again later. During the choice task itself, participants could only view one ticket at a time, and had to click between them. These clicks served as an explicit measure of tradeoffs as participants switched back-and-forth between the options. Participants then either chose a ticket or chose to defer, and their response times were recorded. At the end of the study, participants

completed a manipulation check which confirmed that the emotion inductions worked as intended (for details on the manipulation check and results, see Web Appendix B)

Results and Discussion

Choice. Results revealed that only 24.2% in the angry condition chose to defer, compared to 37.6% of participants in the neutral condition and 38.5% in the sad condition (Wald $\chi^2 = 8.67$, $p = .01$). Planned comparisons show that deferral was significantly different between angry and both neutral ($z(423) = 2.52$, $p < .02$) and sad ($z(423) = 2.54$, $p < .02$), but neutral and sad did not differ ($z(423) = 0.52$, $p > .95$). This is consistent with our predictions both that anger reduces choice deferral and that sadness does not. Of the participants who chose to select a ticket, there were no differences in the chosen option between conditions (Wald $\chi^2 = 2{,}34$, $p > .31$).

Tradeoffs. We found significant differences in the number of tradeoffs between conditions as measured by clicks. Participants in the anger condition switched between the options an average of 4.0 times, compared to participants in the control condition who switched an average of 5.0 times and participants in the sadness condition who switched an average of 4.8 times. A negative binomial regression confirmed that angry participants switched fewer times than either neutral ($b = 0.17$, $z(423) = 3.13$, $p < .002$) or sad participants ($b = 0.14$, $z(423) = 2.38$, $p < .02$); a planned comparison found no difference between neutral and sad participants ($b = -0.02$, $z(423) = -0.81$, $p > .41$). A bootstrapped mediation analysis with 1000 iterations found that tradeoffs drove the effect of anger (vs. neutral) on the decision to defer (bias corrected 95% CI [-0.925, -0.007]), while no such effect was found for sadness (bias corrected 90% CI [-0.326, 0.071]; mediation details in Web Appendix B). Response time (in seconds) followed the same pattern as tradeoffs and further confirmed that anger reduces the depth of information processing

($F(2, 423) = 2.84$, $p < .06$), such that angry participants took less time ($M_{angry} = 32.12$, SE = 1.44) than control participants ($M_{neutral} = 38.12$, SE = 2.52; $t(422) = 2.28$, $p < .03$) and sad participants ($M_{sad} = 37.91$, SE = 1.89; $t(422) = 1.96$, p =.05), while control and sad participants did not differ ($t(422) = -0.25$, $p > .80$).

STUDIES 4A and 4B

We proposed that because anger leads to more goal-consistent choices, one consequence could be greater post-choice satisfaction. We test this implication in the next two studies. We provided participants with real choices and measured their choice satisfaction after a week's delay (Study 4A) as well as immediately after the choice (Study 4B). We predicted that angry participants would report greater satisfaction with their choices.

STUDY 4A

Study 4A examines post-choice satisfaction in a choice sets that presents tradeoffs without the traditional structure of the compromise set. While we do not make any predictions about the specific options that angry participants will choose from such a choice set, we expect that if angry individuals rely more on their goals rather than on tradeoffs, they should be happier with their choices. The study measures the effect of anger after a one week delay to examine whether the effect persists when the emotional state of anger is over.

Method

Student volunteers ($N = 81$; $M_{age} = 22.5$) completed a single factor (Emotion: angry, sad, or neutral) between-subjects design using the emotion induction used in Study 3B (manipulation

check details in Web Appendix B). Next, all participants were offered a choice between two different packs of cookies and a cash prize of $3 as a token of thanks. The packs of cookies varied on several dimensions, such as brand, number of cookies, and variety of cookies (see Appendix A). One week later, participants were contacted again and asked to indicate how satisfied they were with their choice (1 = Highly Dissatisfied to 9 = Highly Satisfied). This longitudinal design speaks to whether the effects of anger on choice satisfaction persist when the emotional state of anger is over.

Results and Discussion

Satisfaction. Two participants failed to respond to the satisfaction survey (one from the sad and one from the neutral condition). We found a significant difference across the emotion conditions ($F(2,76) = 3.93$, $p < .05$): angry participants were more satisfied with their choice ($M = 6.93$, SD = 0.31) compared to both sad ($M = 5.88$, SD = 0.34) and neutral participants ($M = 5.65$, SD = 0.37). Planned comparisons revealed a significant difference between angry and neutral ($t(77) = 2.64$, $p < .05$) and between angry and sad participants ($t(77) = 2.14$, $p < .05$), but not between sad and the neutral participants ($t(77) = 0.45$, $p > .65$). Emotion condition did not predict participants' choices ($\chi^2(4) = 0.08$, $p > .99$; see Web Appendix B for detailed results).

We argue that the long-lasting effect of anger on satisfaction lends support to the notion that anger affects satisfaction by promoting goal-consistent choices rather than through heuristic based or impulsive decision making. However, the results are open to the possibility that appraisals of certainty and control lead participants to perceive any choice more positively. Next study addresses this limitation.

Study 4B

The current study aims to replicate the effect of anger on post-choice satisfaction, and to show that this increased satisfaction is indeed a product of greater goal-directedness rather than due to greater reliance on heuristics. Moreover, the study also rules out an alternative explanation for the effects which suggests that consumers' certainty and control appraisals directly lead them to perceive their choices more positively. We do this by demonstrating that consumers' choices mediate the effect of anger on satisfaction, suggesting that anger leads to selection of more goal-consistent, and thus more satisfying, options. We again examine the context of a compromise choice where it is reasonable to assume that participants who choose one of the extreme options are more likely to have an idiosyncratic goal that directs their choices, whereas those who choose the compromise option are less likely to have a clear idiosyncratic goal and may engage in attribute tradeoffs. As goal-consistent choices tend to be more satisfying (Markman and Brendl 2000), we predict that angry participants should be more satisfied with their choices as a consequence of being more likely to choose an extreme option consistent with their idiosyncratic goals. On the other hand, if reliance on heuristics or appraisals of certainty and control directly lead angry consumers to be more satisfied with their choices, we should expect angry participants to be more satisfied regardless of their choice.

Methods

University students (N = 118) completed the study for a chance to win a $25 gift card of their choice. They completed an emotion induction (Emotion: angry or neutral), using the same prompts as Study 3A, before making a choice from a compromise choice set. They chose between gift cards to three restaurants near campus: Five Guys, Shake Shack, and Yard House.

The restaurants were selected to reflect a price-quality tradeoff based on a pretest (Five Guys was low quality/low price, Yard House was high quality/high price, and Shake Shack was moderate on both quality and price). Participants were informed that they would be entered into a raffle to win the gift card they chose. Following the choice, participants rated their satisfaction with their chosen gift card (1 = Highly Dissatisfied to 9 = Highly Satisfied).

Results and Discussion

Choice. Replicating Study 3A, anger attenuated the share of the compromise option: only 37.7% of participants in the angry condition chose the compromise option while 58.3% did so in the neutral condition (Wald $\chi^2 = 4.85$, $p < .03$).

Satisfaction. As predicted anger led to greater post-choice satisfaction ($M_{angry} = 7.90$, SE = 0.19; $M_{neutral} = 6.77$, SE = 0.26; $F(1, 116) = 12.13$, $p < .001$). Choice of an extreme option also predicted greater satisfaction ($M_{compromise} = 6.82$, SE = 0.28; $M_{extreme} = 7.79$, SE = 0.19; $F(1, 116) = 8.54$, $p < .005$), in keeping with our assertion that such choices tend to be reflective of pursuit of an idiosyncratic goal over a reliance on tradeoffs (see Figure 2). A bootstrapped mediation analysis with 1000 iterations confirmed that anger led to increased satisfaction by first reducing choice of the compromise option (bias corrected 95% CI [0.064, 1.686]; details in Web Appendix B). The finding that anger leads to greater satisfaction only among those who select an extreme (vs. compromise) option lends support to a goal-based process over the possibility that appraisals of certainty and control directly increase satisfaction with any choice.

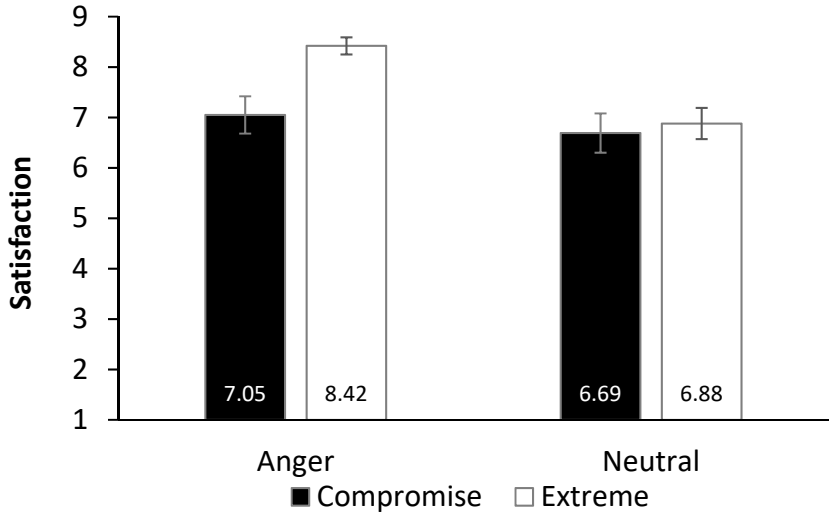

Figure 2: Study 4B Satisfaction Results. Anger predicts higher satisfaction when participants choose an extreme option but not when they choose the compromise option. The results lend support to the claim that anger increases satisfaction by encouraging more goal-consistent choices rather than through reliance on heuristics.

GENERAL DISCUSSION

On the basis of the appraisal tendencies of emotions, we proposed a framework to predict when and how negative emotions may facilitate goal-directed decision-making in consumer choice. We suggested that emotions marked with appraisals of high certainty and high control would lead to more goal-consistent choices relative to emotions with appraisals of low certainty and low control. We propose that this occurs because greater certainty and control reduce the level of tradeoffs consumers make when making a decision which can distract them from their goals. In support of our theorizing, we looked at three emotions: anger, which is associated with high certainty and control, as well as sadness and fear, which are associated with low certainty and control. We predicted that angry consumers, in contrast to neutral, fearful, or sad consumers,

would be more likely to make choices consistent with their goals, and would be less susceptible to decision biases arising from excessive reliance on attribute level tradeoffs.

Six studies provide evidence for our proposition. We find that angry consumers were more likely to make more goal-consistent choices when a goal was explicitly provided (studies 1 and 2) as well as when no goal was explicitly made salient (studies 3A, 3B, 4A and 4B). Moreover, angry consumers showed greater reliance on goal-relevant attributes in their decision making instead of relying on goal-irrelevant tradeoffs, leaving them less susceptible to settling on a compromise option (Study 3A), less likely to defer their choices (Study 3B), and ultimately more satisfied with their choices (Studies 4A and 4B). Results on post-choice satisfaction provide strong evidence that anger increased satisfaction through its influence on goal-directed choice. This further excludes the alternative explanation that anger leads to the observed effect as a result of reliance on heuristics or from appraisals of certainty and control directly increasing evaluations (Study 4B). Lastly, contrasting anger with fear (Study 2) and sadness (Study 3B and Study 4A) provided further support for the role of certainty and control appraisals in goal-consistent decision making by allowing us to rule out valence, arousal, and cognitive load as possible explanations for the observed effects.

These results have both theoretical and practical importance, and we hope they will motivate further research in the under-studied intersection of emotion and goal-directed decision making. While most prior research exploring the influence of emotion in goal pursuit suggests that positively valenced emotion promotes goal-directed behavior while negatively valenced emotion inhibits it (e.g., Bagozzi et al.1998), our work highlights the importance of incorporating the more nuanced view afforded by the Appraisal-Tendency Framework when studying the impact of emotional states in goal-pursuit. Our research further proposes that emotional inputs

can lead consumers to form their decision criteria in a more goal-driven, top-down fashion rather than in a bottom-up product- or attribute-driven fashion. The findings contribute to prior literature looking at how such processing shifts happen, much of which has focused on cognitive factors, such as construal level (Cho, Khan, and Dhar 2013; Khan, Zhu, and Kalra 2011; Fujita and Trope 2014), rather than emotional factors. To the extent that consumers use their goals as a simplified means of resolving multi-attribute choices, our findings shed further light on how high certainty and control emotions may reduce the depth of information processing (Tiedens and Linton 2001).

Our research also highlights that a moderating factor might be necessary for activated goals to influence choice. We know from past literature (Huffman and Houston 1993) that activated goals lead consumers to attend to goal-relevant information in multi-attribute decisions, but our results suggest that this alone may not be enough to drive goal-consistent choice. For example, even when participants in studies 1 and 2 were primed with a goal, that goal guided behavior only when participants were angry. This calls for further research into whether specific emotional (and even cognitive or motivational) states make consumers more open to priming effects than others.

While we focused on the appraisals of certainty and control to generate our predictions, there may also be other ways in which emotions may influence goal-directed decision making. Future research could examine the role of other emotions or appraisals in similar decision contexts. For instance, disgust and happiness are associated with both high certainty and high control appraisals (Smith and Ellsworth 1985; Han et al. 2007; Tiedens and Linton 2001), and thus could have similar effects on consumer choice as anger. In contrast, boredom is associated with a high sense of certainty but low sense of control, while surprise is associated with a high

sense of control but a low sense of certainty (Smith and Ellsworth 1985). Understanding how these emotions influence goal-directed choice will help to disentangle the potentially unique roles of certainty and control appraisals in goal pursuit.

Additionally, more research is needed to understand how emotions may interact with the number of salient goals (single vs. multiple), the nature of those goals (e.g., promotion vs. prevention goals), and the stages of goal pursuit. Our predictions focused on single, promotion related goals. However, when consumers pursue multiple goals and/or prevention goals, the same appraisals may generate different results. For example, certainty and control tend to reduce sensitivity to losses (Lerner and Keltner 2001), which may put them at odds with prevention goals that tend to emphasize avoidance of losses (Higgins 1997).

Finally, our research provides important insights for marketers. Typically anger is thought of as something a company needs to control, as can be witnessed by the significant resources firms spend to mitigate consumer anger. However, our results show that anger can be leveraged towards positive outcomes. We suggest that anger can be an effective way to motivate consumers to pursue goals made salient by a firm's messaging, and could perhaps increase satisfaction with their actions. For example, in the space of political advertising, a campaign might be more successful in motivating people to vote if they employ anger appeals rather than fear or neutral factual appeals. Similarly, non-profit marketers may be able to generate greater contributions by using anger appeals (e.g., highlighting cruelty or injustice) rather than sadness appeals (e.g., highlighting lack of resources or pity). Indeed, we already see a great deal of appeals based in anger on social media, such as polarizing calls to action encouraging consumers to pursue goals ranging from low-commitment behaviors (e.g., "clicktivism") to high-involvement choices (e.g., boycotts). Product advertising might employ similar strategies to

better increase sales, such as by stoking anger against a competing brand or by highlighting a commonly experienced complaint with the competition. The findings also have implication for consumers' information search behavior. If angry consumers are indeed more goal directed, their information search may also be more goal-consistent. Hence, inbound (vs. outbound) marketing tools may be more effective with angry consumers but not with fearful or sad consumers. Moreover, angry consumers may reach a decision sooner and terminate their information search faster. This has implications for designing the length of communications and advertisements, as well as for the structure of persuasive messages (e.g., how soon to identify diagnostic information or a key argument).

Our findings also have managerial implications for motivating goal-pursuit outside of marketing. For example, organizations often go through times when anger among employees may be high, such as during layoffs or salary freezes. Our research suggests that such difficult times might present an opportunity to highlight corporate goals to the employees. In fact, organizations might even want to highlight anger to refocus employees to generate greater productivity. For example, leveraging anger is common in competitive sports, where it is viewed as facilitative of better player performance (Robazza and Bortoli 2006). Our work shows that anger has a broader positive role to play in goal-directed behavior than previously understood.

Although our results suggest that anger is indeed a fruitful way to motivate consumers toward goal-consistent behaviors, there is an important caveat: while angry consumers may pursue their goal(s) more effectively, they will also be less susceptible to marketing efforts that rely on contextual cues to steer their behavior. We also note that because we have emphasized incidental anger in this article, further research is needed to shed light on how the effect will manifest in cases where consumers are pursuing goals related to the source of their anger.

In closing, our research provides preliminary evidence on the role of negative emotions in creating goal-directed decision making. In this regard, our work contributes to prior findings on positive effects of negative emotions in decision making (e.g., Young et al. 2011; Jung and Young 2012). However, it is important to note that we are not making a general claim that anger will always improve decision making and increase satisfaction. We have identified choice contexts where consumers are likely to engage in tradeoffs which distract from their goals and lead to decision biases, but clearly there are situations where careful consideration of tradeoffs can improve decision making such as interpersonal relationships and negotiation contexts. We hope that our research will serve to stimulate further inquiry on the role of emotions in goal-directed decision making, helping us to better understand when and which emotions help versus hurt.

WEB APPENDIX A: STIMULI USED IN THE STUDIES

Study 1

Goal Primes

The speed-goal review:

"This model has much improved acceleration to go rapidly from 0 to 60; You will really value the pick when in a rush to get somewhere quickly; It gives excellent highway speed; I have seen this fast car zoom past other vehicles on the road; I absolutely love this swift model!"

The capacity-goal review:

"This model has much improved capacity; It has excellent legroom for rear seats; You will really value the sizable interior storage spaces for driver as well as the passenger. Cargo space is also much enhanced for larger volumes of luggage; I absolutely love this spacious model!"

Dependent Variable

Choice:

Imagine that you would like to buy a laptop. You have narrowed your search to the two laptops described below. Both laptops are made by the same brand, have an Intel processor, they cost the same and have the same screen size and weight. They differ in terms of their **Hard Drive Size (Capacity) and Processor Speed (CPU)**. Greater **Processor Speed** improves the speed with which the computer processor carries out applications and instructions while greater **Hard Drive Size** improves computers capability to store programs, photos, video, music and other electronic information.

	Hard Drive Size	**Processor Speed (CPU)**
Laptop A	320 GB	3 GHz
Laptop B	500 GB	2 GHz

Study 2

Laptop choice

"Suppose that you need to buy a laptop. Because of your particular needs, it is especially important to you to get a fast laptop. You have narrowed your search to the two laptops described below.

Both laptops are made by the same brand, have an Intel processor, and cost about the same. Their main differences are in terms of their RAM (system memory) and hard drive (digital storage size).

For reference, RAM is what the computer uses to run its operating system, applications, and active data files. Greater amounts of RAM improve computer speed and enable more applications to be run at once. The hard drive size is the computer's capacity for storing programs, photos, videos, music, and other digital information. Greater hard drive size means that the computer can store more files and information as well as install and run more complex software.

Which of the following two laptops would you choose?

O RAM: 9 GB

Hard Drive: 128 GB
Battery Life: 10 hours
Screen Size: 12 inches
Color: Grey

O RAM: 7 GB

Hard Drive: 256 GB
Battery Life: 9 hours
Screen Size: 13 inches
Color: Black"

Flashlight choice

"Suppose that you need to buy a flashlight. Because the flashlight will be meant to be used for emergencies, you have been advised that it is important for it to be lightweight and easy to handle. You have narrowed your search to the two options described below.

Both flashlights are made by the same brand and cost the same. Their main differences are in terms of their weight and power (i.e., their wattage and brightness). Which of the following two flashlights would you choose?

- Weight: 10 ounces
  Power: 20 watts
  Color: Silver
  Bulb: Incandescent
  Adjustable beam: No

- Weight: 4 ounces
  Power: 10 watts
  Color: Black
  Bulb: LED
  Adjustable beam: No”

Restaurant choice

“Suppose that you need to choose a restaurant to take a visiting friend out to dinner. It is especially important for you to impress this friend with a nice restaurant. You have narrowed your search to the two establishments described below.

Both restaurants have similar ambiance. Their main differences are in terms of their Yelp star ratings and Yelp price ratings.

Which of the following two restaurants would you choose?

- Stars: 3/5
  Number of reviews: 223
  Price: $$
  Distance: 0.6 miles
  Type: Italian
  Takes reservations: Yes

- Stars: 4/5
  Number of reviews: 185
  Price: $$$
  Distance: 1.4 miles
  Type: American (new)
  Takes reservations: Yes”

Study 3A

Imagine that you would like to buy a laptop. You are considering the three SONY laptops described below. They differ in terms of their RAM (memory), Weight, CPU (processor speed), and price

	RAM	Weight	CPU	Price
Laptop A	1 GB	7.2 lb	2 GHz	$600
Laptop B	2 GB	6.2 lb	2.4 GHz	$850
Laptop C	3 GB	5.2 lb	2.8 GHz	$1100

Study 3B

Ticket A: U·S AIRWAYS

$384 Roundtrip		
4 tickets left at this price!		
Depart (PIT) **7:15 am** PT Arrive (SFO) **12:30 pm**	*Duration: 8hr 15mn*	Connects in Detroit -- 3 hr layover
PT Depart (SFO) **6:30 pm** Arrive (PIT) **5:45 am**	*Duration 8hr 15mn*	Connects in Detroit -- 3 hr layover
Please come to the airport at least 1.5 hour before the flight time		

Ticket B: U·S AIRWAYS

$490 Roundtrip		
4 tickets left at this price!		
Depart (PIT) **11:45 am** PT Arrive (SFO) **1:45 pm**	*Duration: 5hr*	Non-stop flight
PT Depart (SFO) **3:30 pm** Arrive (PIT) **11:30 pm**	*Duration 5hr*	Non-stop flight
Please come to the airport at least 1.5 hour before the flight time		

Study 4A

Study 4B

WEB APPENDIX B: PRETEST, POSTTEST, AND ANALYSIS DETAILS

Study 3A Tradeoff Coding

We coded an explanation as indicating "tradeoff" if it explicitly considered different conflicting goals or attributes of the presented options in relation to one another (e.g., "Decent components at decent price"; "worth the extra money for the specs"). We also categorized explanations indicating choice of the “middle” or “average” option as reflecting a tradeoff (e.g., “Middle of the road”; “Reasonable in all ways”) as this suggested that the participant was not choosing on a single criterion but had attempted to reconcile conflicting goals and attributes. In contrast, we coded an explanation as “no tradeoff” if it only mentioned one attribute, suggesting a lexicographic preference (e.g., "I always try to buy the lightest possible laptop"; "Price was my major consideration"), or if it indicated prioritizing a goal beyond the information in the choice-set (e.g., "I would buy a computer that would last the longest"). Inter-rater reliability was .94, and disagreements were resolved by discussion.

Study 3A Mediation Analysis

To test whether making tradeoffs indeed mediates the effect of anger on choice, we ran a bootstrapped mediation analysis with 1000 replications (Preacher, Rucker, and Hayes 2007). The data fulfilled the mediation model. First, anger, predicted the compromise choice (b = -0.92, z = -1.95, $p < .06$): anger led to decreased choice of the compromise option. Second, anger also significantly reduced participants’ tendency to make tradeoffs (b = -1.25, z = -2.91, $p < .01$). Additionally, tradeoffs significantly predicted compromise choice (b = 4.25, z = 4.03, $p < .001$). Finally, when both anger and tradeoff-making were included in the model, tradeoffs significantly

increased compromise choice ($b = 4.21$, $z = 3.95$, $p < .001$), but the effect of anger on choice was no longer significant ($b = -0.11$, $z = -0.18$, $p > .85$). To summarize, these results followed the proposed model in which the decreased tendency to choose the compromise option observed among angry participants is due to their reduced tendency to relay on tradeoffs and focus on a relevant goal or criterion (bias corrected 95% CI [-0.293, -0.058]). Bootstrapped coefficients were adjusted to account for both the mediator and outcome variables being dichotomous (MacKinnon and Dwyer 1993).

Study 3B Manipulation Check

We measured emotions with a battery of six questions (1 = Not at All to 7 = Extremely) presented among filler items. We assessed anger by asking for the extent to which the participant felt "angry," "frustrated," and "disgusted;" and we assessed sadness using "sad," "defeated," and "upset." To ensure accuracy in measuring the manipulation, two steps were taken: first, the emotion measures were presented either right after the emotion manipulation or right after the choice (counterbalanced); and second, to avoid any day-of-the week effects in emotions, the data was collected over the course of two separate days, which we control for in the analyses.

Results and Discussion

All analyses control for the order of the manipulation checks and the day of data collection. While we found more intense reports of emotion when the manipulation checks came immediately after the emotion manipulation, we found no effects of task order on either deferral or tradeoff behavior, so they are not discussed further (all $F < 1$).

We merged the 3-item emotion measures into single scales (Cronbach's alphas: $\alpha_{anger} = .93$, $\alpha_{sadness} = .88$, $\alpha_{happy} = .75$). Manipulation checks showed that participants in the angry

condition felt angrier than those in the sad or neutral conditions (M_{angry} = 3.02, SE = 0.17; M_{sad} = 2.67, SE = 0.16; $M_{neutral}$ = 1.67, SE = 0.09; $F(2, 423) = 31.96$, $p < .001$). Planned comparisons found the difference between the angry and the neutral conditions to be significant ($t(423) = -7.64$, $p < .001$) and the difference with the sad condition to be marginal ($t(423) = -1.80$, $p < .08$). Participants in the sad condition reported feeling more sad than those in the angry and the neutral conditions (M_{angry} = 2.34, SE = 0.12; M_{sad} = 2.70, SE = 0.16; $M_{neutral}$ = 1.63, SE = 0.08; $F(2,423) = 22.91$, $p < .001$), and planned comparisons found significant differences between the sad and both the neutral ($t(423) = -6.55$, $p < .001$) and anger conditions ($t(423) = -2.23$, $p < .05$).

Study 3B Mediation Analysis

To test whether making tradeoffs indeed mediates the effect of anger on choice deferral, we ran a bootstrapped mediation analysis with 1000 replications (Preacher et al.2007). The data fulfilled the mediation model. First, a contrast comparing the angry to both the neutral and sad conditions predicted choice deferral ($b = -0.66$, $z(424) = -2.87$, $p < .01$), such that anger led to decreased choice deferral. Second, anger also significantly reduced participants' tendency to make tradeoffs ($b = -0.16$, $z(424) = -3.20$, $p = .001$). Additionally, more tradeoffs significantly predicted choice deferral ($b = 0.08$, $z(424) = 2.23$, $p < .03$). The bootstrap analysis found the indirect effect of anger through tradeoffs on deferral to be significant (bias corrected 95% CI [-0.925, -0.007]; coefficients for the dichotomous DV were standardized per MacKinnon and Dwyer 1993). Mediation did not find any significant effect for the orthogonal contrast comparing the neutral and sad conditions (90% bias corrected CI [-0.326, 0.071]).

Study 4A Manipulation Check

Following the emotion induction, all participants (N = 81) in the supplemental study indicated how sad and how angry they felt at the moment (1 = Not at all to 7 = Very much) on items concealed among filler questions. Participants in the anger condition felt angrier than those in the neutral and sadness conditions (M_{anger} = 4.74, $M_{sadness}$ = 3.07, $M_{neutral}$ = 1.55; $F(2,78)$ = 41.85, $p < .001$), while participants in the sadness condition felt more sad than those in the anger and neutral conditions (M_{anger} = 2.3, $M_{sadness}$ = 3.81, $M_{neutral}$ = 1.11; $F(2,78)$ = 31.33, $p < .001$).

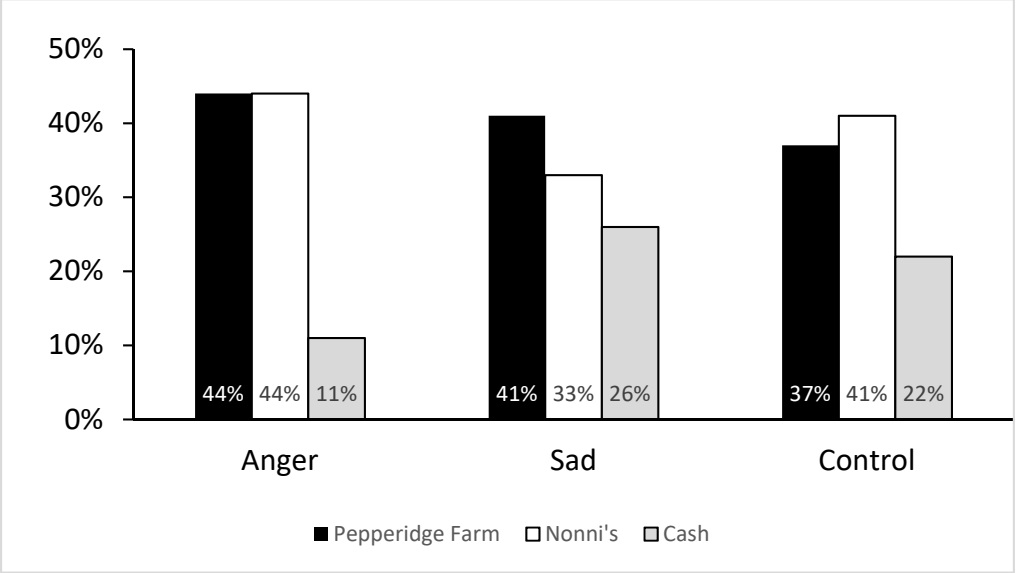

Figure 3: Study 4A Choice Shares. While anger predicted higher satisfaction, we did not predict systematic differences in choice behavior for this context. In line with this, choice shares did not vary significantly across conditions. This includes the choice to accept between cookies versus money as well as the choice of specific cookie type.

Study 4B Mediation Analysis

To test whether choice of an extreme option (vs. compromise) indeed mediates the effect of anger n satisfaction, we ran a bootstrapped mediation analysis with 1000 replications (Preacher et al. 2007). The data fulfilled the mediation model. First, anger (vs. neutral) predicted greater post-choice satisfaction (b = 1.13, $t(116) = 3.48$, $p < .001$). Second, anger also predicted reduced choice of the compromise option (b = -0.83, $z(116) = -2.20$, $p < .03$). Additionally, decreased selection of the compromise option significantly predicted satisfaction (b = -0.96, $z(116) = -2.92$, $p < .01$). The bootstrap analysis found the indirect effect of anger through choice on satisfaction to be significant (bias corrected 95% CI [0.064, 1.686]; coefficients for the dichotomous DV were standardized per MacKinnon and Dwyer 1993).

WEB APPENDIX C: ADDITIONAL STUDIES

Supplemental Study Reported in Study 3A

To further support the mechanism that anger leads to greater goal-directed decision making because of greater attention to goal-consistent information, we conducted a supplemental follow up study. We primed participants with a goal to prioritize quality in a consumer context, and examined whether they attended more to goal-relevant information (i.e., quality rather than price) in a multi-attribute choice. We expected that angry participants would be more sensitive to the primed quality goal, and would be more likely to report attending to quality-related product dimensions.

Method

Participants from an online pool ($N = 62$, $M_{age} = 35$) completed the study for a chance to win a $25 gift certificate. Emotion (Anger vs. Neutral) was manipulated as in study 2. All participants completed a manipulation-check among filler questions to gauge how angry they felt at that moment (1 = not at all to 7 = very much).

In an ostensibly unrelated choice study, participants viewed the following choice and indicated the extent to which they would base their choice on price, attractiveness, customer ratings, and overall quality (1 = not at all to 7 = very much).

Imagine that you are looking to buy a high-quality TV to set up your entertainment room. Your goal is to get a TV that would offer you an excellent high-quality viewing experience. You've decided to get a 32" TV and you have narrowed your search to the two Sharp TVs described below:

	TV A	TV B
Customer quality ratings (1-5)	4	4.6
Screen resolution	900	1080
Price	$699	$949
Warranty	2 years	2 years

Results and Discussion

As expected, participants in the anger condition felt more anger than those in the neutral condition (M_{anger} = 6.1, SD = 2.67; $M_{neutral}$ = 2.23, SD = 1.84; $F(1,61) = 44.08$, $p < .001$). The three quality items (overall quality, customer ratings, and attractiveness) were aggregated into a composite measure of quality (Cronbach's alpha = 0.62). Consistent with our prediction, participants in the anger condition rated quality as significantly more important to their decision (M = 4.9, SD = 1.28) compared to the neutral participants (M = 4.17, SD = 1.22; $F(1,61) = 5.68$, $p < .05$). Ratings of price did not vary between conditions (M_{anger} = 5.13, SD = 2.06; $M_{neutral}$ = 5.39, SD = 1.86; $F(1, 61) = 0.27$, $p = 0.6$), showing that angry individuals did not simply give higher ratings, but rather they perceived attributes consistent with the quality goal to be more important. The results support the notion that anger leads consumers to place greater emphasis on goal-relevant information.

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